The Gosdas’s Theory of Dynamic Space

A. The first space deformation - The antigravity

B. The second space deformation - The gravity

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Abstract

The Gosdas’s Theory of Dynamic Space refers first to the structure of the isotropic space, based on the electrical and dynamic antithesis (opposition) of positive and negative elementary units. This antithesis emerges as the unique principle of the Cosmos structure, which is the «union of opposites» of Heraclitus that we observe in all natural phenomena, as pairs of opposites.

If the isotropic space were infinite, then the attractive and repulsive forces of space elementary units would be at balance, in the form of a cubic grid of infinite dimensions, as a sole existence.

The physical space (the Universe), though, is not infinite. It has been created by the spherical deformity of the isotropic space, as its first deformation. At space limits, the vacuum (non units-non space) tows (sucks) the space-existence, because of the antithesis (opposition) principle between existence and nonexistence.

This first space deformation creates the cohesive forces, which cause the chaotic (huge) cohesion pressure $P_0\approx10^{151}$N/m$^2$ (see chapter B, paragraph 2). In this vast storehouse of energy $E_0\approx10^{230}$Joule (see chapter A, paragraph 4), the unique invisible force is the electrical one between positive and negative elementary units. The five evident Nature forces (1.antigravity, 2.gravity, 3.cortex, 4.nuclear, 5.electrical) are derived by this unique electrical force (see bibliography: Theory of Dynamic Space - The Universal Truth chapter 4, paragraphs 4.5.1. and 4.5.2. and chapter 5).

The first grand Cosmic event is the Genesis of matter, with the creation of the primordial neutron in the Universe center, as a second (local) space deformation (hole-bubble of empty space).
A. The first space deformation - The antigravity

1. The space as existence and the vacuum (non space) as nonexistence

The physical space is not an abstract geometric concept, but a reality, as its deformations (see chapter B, paragraph 1), the matter and the motion. The way our senses perceive the deformations of space, they also, indirectly, perceive it as existence. Therefore, the space-existence extends on the entire Universe, where matter and motion are contained. Beyond and besides of that, the empty space-nonexistence is «extended» as the opposite concept of space-existence.

2. The extent and the cohesiveness of space

The matter and the motion have in common their extent. Indeed, the extent or dimension becomes immediately evident with the dimensions of matter, while with the motion it is perceived as an interval, as a length. So, the extent or dimension or length \( L \) stands for the matter, the motion and the space as the first structural element and as a physical entity that cannot become zero (see bibliography: The Timeless Universe page 47, paragraph 4 and page 165, paragraph 9).

Another characteristic of matter is its cohesive forces. They are perceived by human senses, directly or indirectly, as gravitational, electric and other forces. Therefore, the matter basic structure (the particles) would be constructed by cohesive forces, coming from the previous structure (the space), whose fundamental structural element should be the force.

So, the idea of space cohesion comes as the result of the observation that matter is structured by cohesive forces.

It is in the basic space structures-existences (matter and motion), namely in their structural elements (extent-length \( L \) and force \( F \)), we must look for the fundamental structural entities of space, as their unique physical sizes.

3. The antithesis principle builds up the space - The force \( F \), the extent \( L \) and the elementary electric charge \( q \) as fundamental space structural entities - The electric dipole

The antithesis principle builds up the geometric space which is endless, as an abstract concept of geometry. Its structure begins with the dimensioning (separation) of point \( P \) and with the Genesis of the two ends of the segment \( AB \). This point \( P \) can be considered as a potential pair of opposite (separated) points, which produce the one-dimensional segment
This dimensioning or opposition is called **linear antithesis** and establishes the distance $L$ between points $A$ and $B$ as a **factor of analogy** (*Figure 1a*).

The geometric space is completed with the opposition or **antithesis** of the line. This line rotates by a maximum angle of $90^\circ$ and two opposite by direction lines are resulting, because they have maximum divergence $90^\circ$. Therefore, two vertical lines are considered to be opposite by direction.

This is resulting a verticality of the two lines and is called **spatial or right antithesis** (*Figure 1b*). The two types of opposition of the geometric space are the linear antithesis and the spatial or right antithesis.

![Figure 1: The linear (a) and the spatial or right (b) antithesis builds up the geometric space](image)

In Nature, forces appear as pairs of opposite forces, known as action and reaction. Thus, force is an antithesis product and along with length (product of the linear antithesis) ensure in space its structural elements, that is force and length. Therefore, the antithesis is the primary and fundamental property of space.

The force (structural element of space) is due to two types of antithesis: the opposition between the two points (linear antithesis) and the electrical opposition of positive and negative electrical charges. That separation of the neutral point $P$ into two points $A$ and $B$ (*Figure 1a*), on which there exist (*Figure 2a*) two **electrically opposite elementary units** (in short: units), gives us the between them electrical traction force $F=KL$, proportional to the distance $L$. This fact that contradicts the **Coulomb's Law** (proven though by the **Gosdas's Theory**, see bibliography: Theory of Dynamic Space - *The Universal Truth* chapter 5, paragraphs 5.3.1. and 5.3.2.), is happening because force must be proportional to the distance.
$L$, due the linear antithesis, since (as mentioned above) this dimension $L$ is a factor of analogy. Note that electrical units are defined as the ultimate structural entity of Nature and bear the elementary positive or negative electric charge $q=1.6\cdot10^{-25}\text{Cb}$ (see bibliography: The Timeless Universe page 177, paragraph 20), without gravitational or inertial mass.

Since in the physical space there are no infinities, the extent or dimension or length $L$ is calculated (see chapter B, paragraph 2) as $L=L_0=0.558\cdot10^{-54}\text{m}$, which is the quantum length of the antithesis dipole in our region (Figure 2a). So, the first structural element of the physical space is the electric dipole of the units. With two successive spatial or right antithesis of the electric dipole, the elementary orthogonal axes system is resulting (Figure 2b). The repetition of those spatial or right antithesis builds up the space as a grid of cubic cells, first as an isotropic infinite dimensional space (Figure 3). The structuring, therefore, of the Gosdas’s space mosaic is the essence of the fundamental antithesis principle!

Figure 2: (a) The electric dipole (linear antithesis $L_0=10^{-54}\text{m}$) and (b) the elementary orthogonal axes system $XYZ$ of isotropic space (spatial or right antithesis)

4. The cubic cell as space quantum - The spherical deformation of isotropic space and its cohesive pressure - The dynamic energy $E_0$ of the Universe

The isotropic space is structured by the positive and negative units, as described in paragraph 3. The units occupy the vertices of the cubic cells according to the model of bipolar compounds of $NaCl$. The cubic cell is the elementary volume or the space quantum, structured by the electric dipoles (Figure 3).
Figure 3: The cubic cell as an elementary volume-quantum of isotropic space, which has the form of infinite-dimensional cubic grid

The traction forces exercised by the electric dipoles create a cohesive pressure on the seats of the cells. These forces are mutually neutralized between adjacent units, resulting the isotropic space to be balanced at the form of a cubic grid of infinite dimensions as a sole existence.

The physical space (the Universe) though, is not infinite. At its outermost limits, where the vacuum (nonexistence) «extends», the external units of space find no other units in order to balance and are pulled only by the underlying ones.

Within the limits of the physical space, wherein the space-existence is separated from the vacuum-nonexistence, applies the maximum antithesis (the principle of antithesis) between existence and nonexistence, resulting the mutual traction from the vacuum-nonexistence to the space-existence. The vacuum-nonexistence tows (sucks) the units existence and tends to make them disappear (Figure 4). So, the antithesis (opposition) is the most fundamental property of Nature.
Finally, because of this mutual traction between vacuum-nonexistence and space-existence, occurs a **spherical deformity** of isotropic space, under the influence of **surface tension**, such as the surface tension on a mercury drop. Thus, the isotropic space from a unique existence of infinite dimensions is transformed into a spherical deformation of **dynamic space**, of finite dimensions (the Universe). The cohesive forces that are developed from this **first Universal deformation** are always directed to the space-existence. It is obvious that this spherical deformity of space has distorted the cell-cubes. The result is the dipoles to lengthen more, moving away from the center to the **Universe periphery** and develop stronger cohesive forces. This is because the force of the electric dipole $F=kL_0$ is proportional to the distance $L_0$ between the units. In our region the force $F$ of the electric dipole is measured at the amazing value (see chapter B, paragraph 2) $F=F_x=0.242 \cdot 10^4 N$ and is, of course, the cause of the **space cohesion**.

Therefore, the cohesive pressure $P_0$, developed by forces of the electric dipoles, is altered and increasing from the center to the Universe periphery, the same way the distances $L_0$ of the units (lengths of the electric dipoles) are increasing.

The creator of the Theory **Naoum Gosdas** uses aptly the mechanical analog of a **maximum circle of Universe incision**. He studies the dynamics of this **elastic stretched circular membrane** and calculates the cohesive pressure $P_{0x}$ of a place at a distance $x$ from the **Universe center with radius $R_0$**, as a function of the cohesive pressure $P_{0p}$ at the Universe periphery, that is $P_{0x}=P_{0p}x^2/R_0^2$. Note that the proof (see bibliography: Theory of Dynamic Space - The Universal Truth chapter 3, paragraph 3.1.3.) of this formula is omitted, due to the limited scope of this work.
The result of this **first deformation** of the Universal space is the development of the cohesive pressure \( P_0 = 0.7777 \times 10^{34} \text{N/m}^2 \) in our region (see chapter B, paragraph 2). Thus, the dynamic space is a vast storehouse of energy, in which the fundamental cause of the force between positive and negative units is the electrical one. This vast energy is resulting, as known, from the **dynamic energy** \( E_0 \) of the spherical deformation of Universal space, that is \( E_0 = P_0 V_0 = P_0 4\pi R_0^3 / 3 \), where \( P_0 \approx 10^{34} \text{N/m}^2 \) and \( R_0 \approx 10^{26} \text{m} \) (see bibliography: The Timeless Universe page 177, paragraph 20), so \( E_0 \approx 10^{130} \text{Joule!} \)

This huge **Cosmic energy** adequately covers the energy and material needs of the Universe and so, the search for so-called «dark» matter and energy is no longer required.

5. The space force and mass densities

The space spherical deformation created its dynamics, based on force and extent. The **space force density** is \( d = F / V \), where \( F = 0.242 \times 10^{34} \text{N} \) the force of the electric dipole in our region and \( V = L_0^3 \) the volume of the cubic cell with edge \( L_0 = 0.558 \times 10^{34} \text{m} \) in our region (see chapter B, paragraph 2), that it is \( d = 1.393 \times 10^{205} \text{N/m}^3 \). So, the space force density is calculated far off the matter.

However, the space force density is also calculated from the force of the **neutron**, its **gravitational force** \( F = F_0 = 27.043 \times 10^{34} \text{N} \) of its particle core vacuum, with radius \( r = 1.6639 \times 10^{-54} \text{m} \) (see chapter B, paragraph 2), and of volume \( V = 4\pi r^3 / 3 \). That is \( d = F / V = 1.393 \times 10^{205} \text{N/m}^3 \), such as the space force density far off the matter. Therefore, force far off or onto the matter is the same. In the deformations of space (matter and motion) the **force changes direction** and becomes evident in human senses. Also, the space force density is \( d = F / V = k L_0 / L_0 \) and \( P_0 = F / L_0 ^ 2 = k L_0 / L_0 = k L_0 \), so \( d = P_0 / L_0 \), that is equal to the ratio of cohesive pressure to the length of the electric dipole in a region.

The formula \( P_0 = P_{0x} x^2 / R_0^2 \) resulting from \( f_{0x} = F_{0x} x^2 / R_0^2 \), where \( f_{0x} = k L_0 \), is the electric dipole force in a region, \( F_{0x} \) the maximum force (constant) of the electric dipole to the Universe periphery (of constant radius \( R_0 \)) and \( x \) is the distance of a region from the Universe center. So \( k L_0 = F_{0x} x^2 / R_0^2 \), therefore \( L_0 = F_{0x} x^2 / k R_0^2 \).

Therefore, the cohesive pressure \( P_0 = P_{0x} \) (see paragraph 4), and the quantum length \( L_0 = L_0 \) of the electric dipole vary, depending on the square of the distance \( x \) in a region from Universe center and then the ratio \( P / L_0 = d / (x \text{ space force density}) \) is independent of \( x \) and remains as a Universal constant.

The **space mass density** is \( d_m = m / V \), where \( m = E / C_0^2 = FL_0 / C_0^2 \), \( C_0 \) the **light speed** and as \( d = F / V \), then \( d_m = F L_0 / V C_0^2 \) and \( d_m = d / L_0 / C_0^2 \).

Note that the **equivalence of mass and energy** \( (E = m C_0^2) \) is calculated from the **accumulated force** (see bibliography: Theory of Dynamic Space - The Universal Truth chapters 6 and 7) at the **dynamic autonomous motion formation of the E/M wave** \( (F_x) = F_{0x} + F_{0x}^2 \), where for the E/M wave applies \( F_{0x} = 0 \), therefore \( F_x = F_{0x} \), namely the final force \( F_x \) of the formation is equal to the accumulated force \( F_x \), where \( F_x = E / L_0 \) represents the energy
of the E/M wave and \( F_t=pC_t/L_0 \) represents its **momentum** and \( E/L_0=pC_t/L_0 \), where \( p=mC_o \) is the momentum of the formation, thus concluding \( E=mC_o^2 \).

Substituting in \( d_m=dL_0/C_o^2 \) the \( d_0=1.393 \cdot 10^{205}/N/m^4 \), \( L_0=0.558 \cdot 10^{34} m \) (see chapter B, paragraph 2) and \( C_o=3 \cdot 10^8 m/sec \), the space mass density is calculated to be \( d_m=0.864 \cdot 10^{134}/Kg/m^4 \).

The \( L_0=L_{0x} \) as we have seen, is proportional to \( x^2 \) and the light speed \( C_0=C_{ox} \) is proportional to \( x \) (see paragraph 6). Therefore, the ratio \( L_0/C_o^2 \) is independent of \( x \) and, consequently, the space mass density \( d_m=dL_0/C_o^2 \) is independent of the distance \( x \) from the Universe center. Accordingly, the space mass density \( d_m \) is a **Universal constant**.

Awe is caused by the enormous values of space force and mass densities, as well as the fixed values in the «emptiness of matter» and in the condensed matter at the particles scale. Such a high concentration of matter has also been «observed» in the **galaxies centers**, where billions of stars are collapsing, forming a monstrous **black hole** as a space deformation (see chapter B, paragraph 1 and reference in paragraph 2).

### 6. The light speed \( C_0 \)

Replacing into \( d_m=dL_0/C_o^2 \) the constant ratio \( d_l=P_o/L_0 \) (see paragraph 5), the light speed is determined

\[
d_m = \frac{P_o}{L_0} \cdot \frac{L_{ox}}{C_o^2} = \frac{P_o}{C_o^2} \Rightarrow C_o = \sqrt[2]{\frac{P_o}{d_m}}
\]

as the transmission speed of the disturbance into the tense dynamic space. So, the E/M wave - light could be regarded as a **disturbance of the elastic - dynamic space**, where \( P_o \) the cohesive pressure of space and \( d_m \) its Universal constant mass density.

Dividing the members of \( P_{ox}=P_{oy}x^2/R_0^2 \) (see paragraph 4) by \( d_m \) and because \( P_{ox}/d_m=C_{ox}^2 \) and \( P_{oy}/d_m=C_{oy}^2 \) is \( C_{ox}=xC_{oy}/R_0 \), where \( C_{ox} \) is the light speed in a region within a distance \( x \) from the Universe center of radius \( R_0 \) and \( C_{oy} \) the light speed at its periphery.

It becomes obvious, that the light speed depends on the space cohesive pressure \( P_o \) and therefore it is not a Universal constant, that is, it is a **local constant**.

In Gosdas’s Theory the E/M wave is a dynamic autonomous motion formation of accumulated apparent forces (see reference in paragraph 5). In this formation the chaotic space cohesive pressure \( P_o \) is installed, as a **pressure difference** \( \Delta P=(P_o-P_0/2)-(P_0-P_o/2)=P_0 \) and causes a change of volume \( \Delta V \) at the proximal elastic space of the E/M wave, producing **dynamic energy** \( \Delta V \cdot P_o/2 \), converted to **kinetic energy** \( mC_o^2/2 \) of the E/M wave. Therefore, \( \Delta V \cdot P_o/2=mC_o^2/2 \) and for \( d_m=m/\Delta V \) (see paragraph 5), it is \( C_o^2=P_o/d_m \), from which the maximum light speed \( C_0=(P_o/d_m)^{1/2} \) is resulting. Consequently, the source of the light speed is the dynamic space cohesive pressure \( P_o \).
7. The Universal antigravity force $F_\alpha$ as the first Nature force

The difference $\Delta P$ of the cohesive pressure (see paragraph 4) is exerted upon the particle core vacuum, which have a volume (see chapter B, paragraph 1). Thus, there are created buoyancy conditions on the bodies with direction to the Universe periphery (Fig. 5).

The above buoyancy is the first Nature force, the antigravity force $F_\alpha$. Therefore, the matter acquires centrifugal accelerated motion with radial direction to the Universe periphery.

![Diagram of antigravity force](image)

**Figure 5**: The buoyancy in the dynamic space creates the antigravity force $F_\alpha$, which causes the accelerated Universe «expansion» and has a direction towards the greater cohesive pressure $P_5$ and to the Universe periphery ($P_1<P_2<P_3<P_4<P_5$, $F_\alpha=V\Delta P/\Delta x$, $\Delta P=P_5-P_1$, $V=$bubble vacuum volume and $\Delta x=$bubble vacuum diameter)

In figure 6 the body is immersed into the Universe dynamic space and the antigravity force exerted on it, is calculated.
Figure 6: Calculation of antigravity force and pressure gradient

The cohesive pressures $P_{0x1}$ and $P_{0x2}$ (see paragraph 4) are $P_{0x1} = P_{0}x_{1}^{2}/R_{0}^{2}$ and $P_{0x2} = P_{0}x_{2}^{2}/R_{0}^{2}$. The forces $F_{1}$ and $F_{2}$ are $F_{1} = P_{0x1}S = P_{0}x_{1}^{2}/R_{0}^{2}$ and $F_{2} = P_{0x2}S = P_{0}x_{2}^{2}/R_{0}^{2}$ with direction towards the space, since cohesion tends to tow (suck) the empty spaces of the body particles. The resultant $F_{a} = F_{2} - F_{1} = (x_{2}^{2} - x_{1}^{2})SP_{0}/R_{0}^{2} = (x_{2} + x_{1})(x_{2} - x_{1})SP_{0}/R_{0}^{2}$ is directed to the Universe periphery and putting $x_{2} + x_{1} = 2x$, $x_{2} - x_{1} = \Delta x$, $V = S\Delta x$, the antigravity force $F_{a} = 2xVP_{0}/R_{0}^{2}$ is calculated.

Also, from $F_{a} = 2xVP_{0}/R_{0}^{2} = 2x\Delta xSP_{0}/R_{0}^{2}$ it is $F_{a}/\Delta x = 2xP_{0}/R_{0}^{2}$ and it is also calculated ($F_{a}/S = \Delta P$) the pressure gradient $\Delta P/\Delta x = 2xP_{0}/R_{0}^{2}$ of the Universal antigravity, to which the space buoyancy is due. The Universal antigravity force can be written as follows $F_{a} = V\Delta P/\Delta x$. Of course, the volume $V$ equals to the sum of the volumes of the body particles core vacuums (vacuum bubbles).

The Universal antigravity force is very weak, as it is exerted upon the small volume of the particle core vacuum (vacuum bubble) and also as the cohesive pressure difference $\Delta P$ is very small. The results of the above force, however, although they evolve at a slow pace, are grand in the Universe. Indeed, it is calculated (see bibliography: The Timeless Universe page 91, paragraph 8) that our galaxy is moving toward the Universe periphery at the inconceivable speed $u = 0.6 \cdot 3 \cdot 10^{8} m/sec$, that is $u = 180,000 km/sec$, resulting from the constant timeless speed $u_{a} = u/C_{0} = 0.6$ (see reference in paragraph 5), which with all the galaxies Cosmic journey take place by their centrifugal antigravity motion!
8. The Universe «expansion» - The phenomenon interpretation - The galaxies chaotic motion - The entropy upgrade - The background radiation

Hubble, observing the shift of the spectral lines towards the red in the galaxies spectrum, he concluded that they move away at a speed proportional to their distance from us, according to the formula \( u=H(AB) \), where \( u \) the removal speed, \((AB)\) the distance from galaxy B and \( H \) the Hubble’s Universal constant. This Hubble’s Law, which is the result of observations by the great astronomer, was proved by the Gosdas’s Theory (see bibliography: The Timeless Universe page 160, paragraph 4). Note that \( A \) is our galaxy, in the motion of which our planet participates, while \( B \) is the moving away galaxy, which Hubble observed.

Therefore, the Universe is not static, as described in the Relativity General Theory with the cosmological constant in its equation. This Einstein’s constant has since been deleted as incorrect.

This way, the «Big Bang» Theory has been formulated, since the galaxies matter should have a starting point to be created. The Gosdas’s Theory gives the following interpretation for the so-called Universe «expansion»: In paragraph 7 it describes the first Nature force (the Universal antigravity), because of which the particles and the galaxies consisting of them obey on an accelerated centrifugal motion. Therefore, what Hubble had observed is not due to the Universe «expansion» as a result of the «Big Bang», but it is the relative motion (Figure 7) of galaxies A and B. As galaxies A and B move centrifugally from the Universe center \( O \) to its periphery, at speeds \( u_1 \) and \( u_2 \) respectively \((u_1<u_2)\), they increase the distance \( AB \) between them, since their components \( u_1' \) and \( u_2' \) are unequal \((u_1'<u_2')\).

For the galaxies chaotic motion the Gosdas’s Theory gives the following interpretation: The external galaxies move at greater speeds (compared to the speeds of the internal galaxies), due to their accelerated centrifugal motion to the Universe periphery.

Also, the galaxies and the galaxy clusters move in Universe regions with large difference of cohesive pressure. Therefore, the particle structure of the external galaxies creates stronger gravity field (see chapter B, paragraph 3), due to the greater cohesion pressure. Additionally the increased motion dynamics with the largest gravitational «tail» (see reference in paragraph 5) of the outer galaxies creates a stronger gravitational field compared to the inner galaxies.

This explains both the higher speeds, and the stronger gravity forces of the external galaxies. This is the cause of chaos and, therefore, the search for an unknown form of matter and energy (mentioned as «dark» ones) in the Universe is no longer necessary. The matter and energy needs of the Universe are outweighed by the chaotic energy \( E_0≈10^{236}Joule \) of the dynamic space (see paragraph 4).

At the end of the Cosmic journey, the particles of the galaxies will disappear, as defined by the antithesis principle (that is the matter Genesis near the Universe center and the matter disappearance at the Universe periphery). This matter disappearance is contrary to the prevailing principle of conservation of matter and energy. The Gosdas’s Theory,
however, has differently defined matter, as a space deformation (see chapter B, paragraph 1), while energy is the possibility of displacement of force and, along with extent, are the space structural elements.

In reality, the dynamic space is the unaltered elastic mosaic Being. The Being’s deformations, matter and motion, the Universe unique phenomena, as forces formations, flow and move under the action of antigravity force. Therefore, there is only a shift of the space deformations, the shift of matter and motion.

In the Universe periphery the dynamics of particle structure and of motion (as well as of autonomous motion of E/M wave) will be refunded to the space as incorruptible forces, while the particle core vacuum will be assigned to the vacuum-nonexistence.

By this refunding of the dynamics of the particle and motion structure in space, the cohesion pressure of space is restored.

During the centrifugal accelerated motion of the dynamic formations (matter and motion) towards the Universe periphery, there happens a continuous increase of entropy. Therefore, we assume that the Universe is drifted to thermal death.

For entropy we will give an etymological interpretation. The word comes from the Greek verb εντρέπω (εν+τρέπω), meaning to restrict. Thus, entropy means restriction to the energy action by direction and extent. Therefore, for stronger restriction, an increase of entropy happens.

So, the definition of energy, as a displacement of force can be for entropy the restriction of the direction displacement of force. Following this restriction, forms of lower quality energy (that of increased entropy), are resulting. This is, indeed, the most clear and unique interpretation, given by the Gosdas’s Theory in defining entropy.

Therefore, since in the Universe periphery the dynamic particle formations return to the dynamic space and their particle core vacuums in the vacuum-nonexistence, then the entropy of the Universe is upgraded to zero entropy (and of better energy quality) of the space cohesive forces. Hence, the Universe entropy remains constant, since it is upgraded to its periphery. In fact, with the dissolution of the space deformations the oriented forces (high entropy) are restored into the form of space cohesive forces (zero entropy).

In the process of degradation of the moving particle, the degradation of motion formation (see reference in paragraph 5) comes first. Therefore, the particles are slowed down before their degradation, resulting the charged particles to produce E/M waves, which are incident on the Universe periphery and are degraded.

However, it takes place collision of the charged particles onto the elastic membrane at the Universe periphery, which is pulsing and causing acceleration of a residue of the charged particle towards the interior, producing a weak radiation. This is the weak radiation of background, which has been detected by Arno Penzias and Robert Wilson.

The background radiation is constant, since the charged particles arrive at the Universe periphery at the same centrifugal speed and, therefore, are degraded by the same
mechanism.

Figure 7: The galaxies relative motion A and B as Universe «expansion» (A=our own galaxy, B=the galaxy observed by Hubble, $P_1$=the cohesive pressure in our region, $P_2$=the cohesive pressure in galaxy region B, $x_1$ and $x_2$ the galaxy distances A and B from the Universe center O)
B. The second space deformation - The gravity

1. The Genesis of the primary matter is the first Cosmic event opposite to the Universe - The force $F_0$ of the vacuum bubble

At the Universe periphery, equality holds (see reference in chapter A, paragraph 4) between lateral and radial tensions. This equality does not hold to areas close in Universe center. As at the Universe center the curvature of space is great, it creates both the inequality of the lateral tensions $T_l$, which are significantly greater than the radial tensions $T_{r1}$ and $T_{r2}$ and the inequality $T_{r1}<T_{r2}$ of the radial tensions, due to the difference of space cohesive pressures (Figure 8). The result is the distension of the cell, which evolves into the formation of a vacuum bubble. This is the beginning of the Genesis of the particle-neutron, the primary form of matter.

![Figure 8: The distension of the cell around the Universe center evolves in the formation of a vacuum bubble ($T_{r1}<T_{r2}<T_l$, where $T_{r1}$, $T_{r2}$ are the radial tensions and $T_l$ the lateral tensions)](image)

This creates a spherical formation of empty space (without units). This spherical formation is the product of the antithesis (opposition) between the nonexistence of the cohesive forces of empty space (non space) and the existence of the cohesive forces of the surrounding dynamic space. This phenomenon is the reverse of the spherical deformation of the Universal space (see chapter A, paragraph 4). The tractive pressure by the bubble formation is balanced by the space cohesive pressure, which taws (sucks) the bubble (Fig. 9).

This vacuum bubble is the second space deformation (local), the sophisticated form of which is perceived by our senses as the matter (see bibliography: The Timeless Universe chapters Γ and Ζ).
**Figure 9:** Indicative presentation of the vacuum spherical formation \( F_0 = P_0 4\pi r^2 \), where \( F_0 \) the bubble force, \( P_0 \) the space cohesive pressure, \( 4\pi r^2 \) the bubble surface area and \( r \) is its radius.

The **cell grid structure**, that surrounds the bubble vacuum, has the properties of an elastic membrane. This membrane tends the surrounding space with the force \( F_0 \) (see paragraph 2) of its formation and balances the **opposite tractive force** of the space cohesive pressure \( P_0 \). This force \( F_0 \) is the product of the **elementary resultants** (Figure 9) formed by the forces \( (F=kL_0) \) of the electric dipoles of the **bubble spherical surface**. Therefore, the force \( F_0 \) balances the towing (suction) forces, caused by the cohesive pressure \( P_0 \) on the bubble spherical surface. The forces developed in the surrounding space create the **dynamic field of gravity**. This total force \( F_0 \) is the **gravitational force** of the particle-neutron.

It is also noted, that the Genesis of the bubble vacuum is created as a reaction to the first space deformation (the Universal spherical deformity). As the space (existence) is surrounded by the non space (nonexistence), similarly the space-existence (Universe) surrounds the bubble vacuum-nonexistence. Therefore, matter as a bubble-vacuum (nonexistence) in the Universe (existence) is conceptually the opposite to the Universe (existence). The principle of antithesis appears as the antithesis between the Universe and the Matter. The principle of antithesis, created by the spherical deformation of Universe, continues to create within it the particles, as **Universe reverse models**, that is, creates the Matter as **small reverse Universes**!
2. Finding of the cell edge \( L_0 \), the space cohesive pressure \( P_0 \), the force \( F \) of electric dipole, the gravity force \( F_0 \) of the neutron and radius \( r \) of its core vacuum

The gravity force \( F_0 \) of the particle-neutron (Figure 9) balances the towing (suction) forces of the space cohesive pressure \( P_0 \) (see paragraph 1). Therefore it is \( F_0=4\pi r^2 P_0 \), so the dynamic energy of the particle-neutron is \( E=P_0 V=P_0 4\pi r^3/3=(4\pi r^2 P_0) r/3=F_0 r/3 \), where \( r \) is the radius of the neutron core vacuum.

If in the formula \( E=P_0 4\pi r^3/3 \) the neutron energy \( E=1.5 \times 10^{10} \text{Joule} \) is introduced, then \( P_0 4\pi r^3/3=1.5 \times 10^{10} \) (1). The gravitational traction between two particles with radii \( r_1 \) and \( r_2 \) at a distance \( R \), it is \( F_0=\pi P_0 r_1^2 r_2^2/R^2 \) (see paragraph 4) and for the neutron radii \( r_1=r_2=r \), the formula becomes \( F_0=\pi P_0 r^4/R^2 \) (2). From Newton’s Law \( F_0=Gm_1 m_2/R^2 \) and for the neutron masses \( m_1=m_2=m \), it is \( F_0=Gm^2/R^2 \) (3).

From (2) and (3) it results \( \pi P_0 r^4=Gm^2 \). Thus, setting the values \( m=1.675 \times 10^{-27} \text{Kg} \) and \( G=6.672 \times 10^{-11} \text{Nm}^2/\text{Kg}^2 \), it is \( \pi P_0=18.719 \times 10^{-65} \) (4).

Finally from (1) and (4) it is calculated the radius \( r=r_1=1.6639 \times 10^{-46} \text{m} \) of the neutron core vacuum and \( P_0=P_0=0.7777 \times 10^{151} \text{N/m}^2 \), the cohesive pressure in our region.

The gravity force \( F_0 \), with which the neutron tends the space \( [F_0=4\pi r^2 P_0=4\pi(1.6639 \times 10^{-46})^2 0.7777 \times 10^{151}] \), is \( F_0=F_0=27.043 \times 10^{44} \text{N} \).

The quantum dipole length \( L_0 \) of the cell edge \( (L_0=1.5 \times 10^{10}/27.043 \times 10^{44} \text{m}) \) is \( L_0=L_0=0.558 \times 10^{-34} \text{m} \).

The dipole constant \( k \) is calculated from the \( P_0=F/L_0^3=k L_0/L_0^2 \Rightarrow k=k_p L_0=0.7777 \times 10^{151} \times 0.558 \times 10^{-46}=0.434 \times 10^{-9} \text{N/m} \).

So, the force of the electric dipole \( F=k L_0=0.434 \times 10^{-9} \times 0.558 \times 10^{-46} \text{N} \) is \( F=F_0=0.242 \times 10^{-46} \).

Note that the index \( x \) is to determine the distance \( x \) between our region and the Universe center.

3. The gravity pressure \( P_g \) of the empty space hole

The particle gravitational force \( F_0=P_0 4\pi r^2 \) is transmitted unaltered at the light speed, as a disturbance of the elastic - dynamic space on a spherical surface of radius \( R \). That is \( F_0=P_g 4\pi R^2 \), where \( P_g \) the gravity pressure at a distance \( R \) from the particle. From these two formulas, it is \( P_0 4\pi r^2=P_g 4\pi R^2 \), so the gravity pressure is \( P_g=P_0 r^2/R^2 \).

Note that the change of the cohesive pressure \( P_0 \) is negligible due to the vast expanse of Universe and we can consider it as constant \( (P_0=P_0) \).

The gravity pressure \( P_g \) is the new form of pressure into the particle gravitational field. It causes densification of the space units and reduction (due to \( F=k L_0 \)) of the space.
cohesive pressure. Therefore, the gravity pressure \( P_g \) substitutes part of the cohesive pressure \( P_{ox} \). It converts the space cohesive forces into gravity forces, due to the presence of the **space hole (local deformation)**. As the gravity pressure of a particle is proportional to the cohesive pressure \( (P_g = P_{ox} r^2 / R^2) \) of the Universe regions, it also affects the **dynamic motion** of distant galaxies. The result of this effect is the chaotic and unexplained galaxies motion (see chapter A, paragraph 8).

In the above formula, for \( R=r \), namely on the surface of the particle core vacuum, it is \( P_g = P_{ox} \) and as \( P_{ox} = F_0 / 4\pi r^2 \), the particle radius \( r \) depends on the region cohesive pressure \( P_{ox} \). Therefore, by the Universe center where a very stable and consistently low pressure exists, one single kind of particle is born (the neutron).

It is also noted that the two space deformations are, respectively, proportional \((x^2)\) and inversely proportional \((1/R^2)\) to their extensions:

- Universal deformation (cohesive pressure) \( P_{ox} = P_{ox} x^2 / R_0^2 \) (see chapter A, paragraph 4).
- Local deformation (gravity pressure) \( P_g = P_{ox} r^2 / R^2 \).

It is, therefore, concluded that the cohesive pressure \( P_{ox} \) is proportional to the square of the distance \( x \) from the center of the Universal deformation (Universe center), while the gravity pressure \( P_g \) is inversely proportional to the square of the distance \( R \) from the center of the local deformation (hole of empty space with radius \( r \)).

The Universal deformation, therefore, produces the local deformation as its opposite, according to the fundamental principle of antithesis.

### 4. The gravity traction force \( F_g \) between two particles - The gravitational and inertial mass \( m \) - The particle dynamic energy \( E \)

On the spherical surface of the particle core vacuum the gravity pressure \( P_g \) has completely substituted the cohesive pressure \( P_{ox} \) \((P_{ox} = P_g)\). At a distance \( R \) from the particle, the cohesive pressure is \( P = P_{ox} - P_g \), that is, diminished by the corresponding gravity pressure \( P_g \), which prevails at the above position.

In a distance \( R \) from the particle \( A \) with a radius \( r_1 \) of core vacuum, let a second particle \( B \) with a radius \( r_2 \) be found (Figure 10). The gravity pressure \( P_g = P_{ox} r_1^2 / R^2 \) of particle \( A \) (see paragraph 3) is not transmitted through the particle core vacuum \( B \), since there are not units (i.e. electric charges) and electric dipoles.
Thus, the whole gravity pressure $P_g$ appears as a traction pressure upon the largest circle surface of the particle core vacuum $B$ (of approximate area $\sim \pi r_2^2$). The gravity traction force $F_g$ to the particle $A$ is equal to the product of surface $\sim \pi r_2^2$ times the gravity pressure $P_g$ ($F_g=\pi r_2^2 P_g$), so $F_g= \pi P_0 x r_1^2 r_2^2 / R^2$. This formula expresses the Gosdas’s Law of gravity traction.

As $F_{01}=4\pi r_1^2 P_0 x$ and $F_{02}=4\pi r_2^2 P_0 x$, then $r_1^2=F_{01}/4\pi P_0 x$ and $r_2^2=F_{02}/4\pi P_0 x$ and substituting in the above formula, it is $F_g=(1/16\pi P_0 x) (F_{01} F_{02}/R^2)$. This is the Gosdas’s Law of gravity traction, as a function of the gravity forces $F_{01}$ and $F_{02}$ of particles $A$ and $B$.

Comparing Gosdas’s Law $F_g=(1/16\pi P_0 x) (F_{01} F_{02}/R^2)$ to Newton’s Law $F_g=G m_1 m_2 / R^2$ the following correspondences $m_1\rightarrow F_{01}$, $m_2\rightarrow F_{02}$ and $G\rightarrow 1/16\pi P_0 x$ are resulting. So, the particles masses $m_1$ and $m_2$ correspond to their respective gravity forces $F_{01}$ and $F_{02}$, which with the particles tend the space.

So, the gravity mass is the expression of the particle gravity force, which with it tends the space, while the inertial mass is its property to react to any change of its movement (this property of inertial mass is discussed in detail - see bibliography: The Timeless Universe chapter H, paragraph 1).

The dynamic energy of the particle is $E=P_0 V=F_0 L_0=m C_0^2$ (see chapter A, paragraph 5), so its gravity mass is $m=F_0 L_0/C_0^2$ and it coincides with the inertial mass.
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